Appendix A   SCSI Devices

This appendix discusses SCSI devices and related issues. This appendix includes the following sections:

Appendix A

SCSI Guidelines

When installing and operating SCSI devices, you must follow these guidelines:

- A narrow (50-pin) SCSI controller allows you to daisy-chain up to seven additional SCSI devices. Counting the controller, that amounts to eight total SCSI devices.

- A wide (68-pin) SCSI controller allows you to daisy-chain up to 15 additional SCSI devices. Counting the controller, that amounts to 16 total SCSI devices.

- If two narrow (50-pin) SCSI controllers are each connected to separate system board SCSI connectors, each controller may have seven SCSI devices attached. Counting the controller, this gives a total of 16 SCSI devices on the system.

- HP does not recommend mixing different width SCSI devices on the same SCSI chain or on the same SCSI channel. Mixing devices of different widths on the same chain or channel will always result in a data transfer rate of the slowest machine in that chain. The only exception to this is that Ultra Wide SCSI devices will cause a speed degradation when mixed with other 68-pin devices.

- If multiple SCSI devices are used, split the devices between channels from multiple controllers for optimum performance. Cable length for the second channel should not be longer than 12 meters.

- If two controllers are used, each can use SCSI devices having widths and speeds different from the other. If a 68-pin data cable is used on a controller having 50-pin SCSI devices, use an internal cable adapter or an external cable adapter.

⚠ **CAUTION** Do not route data cables near the air intake to the power supply. Cables routed in this manner may block the airflow and cause the workstation to overheat.

- All SCSI controllers require a unique SCSI ID (0–15) for each SCSI device installed. For more information, see "Jumpers" on page 155.

- 68-pin SCSI controllers require a 12-meter, maximum-length twisted pair, LVD cable with built-in terminator, maximum of 15 drives.

- Every SCSI chain or circuit must be terminated (closed) at both ends. Some system boards have both ends of the SCSI cable connected to, and terminated by, the system board. Termination can be accomplished in one of several ways:

    - Use a cable with a built-in terminator.

    - Use a cable with a terminating resistor plug in the last connector.

    - Connect a SCSI device with its termination enabled into the last connector.

    - Connect an external SCSI device with its termination enabled to the external SCSI connector on the rear panel of the workstation.

- Turn on all external SCSI devices before turning on the power to the workstation. This enables the SCSI controller to recognize the external devices.

Using SCSI*Select* with SCSI Devices

The Ultra160 and faster SCSI host adapters include the SCSI*Select* utility to configure the host adapter and to run the SCSI disk utilities. To run the SCSI Select utility:

- In POST Messages Enabled mode: Press **Ctrl+A** when the "Press<Ctrl><A> for SCSI*Select* Utility" message appears during POST.

- In POST Messages Disabled mode: When the HP logo screen appears, press any key to exit the logo screen. Immediately after exiting the logo screen, press **Ctrl+A** to access the SCSI*Select* utility.

A menu appears with the following options:

- Configure/View Host Adapter Settings

  - SCSI Bus Interface Definitions

    - Host Adapter SCSI ID

    - SCSI Parity Checking

    - Host Adapter SCSI Termination

  - Additional Options

    - Boot Device Options

    - SCSI Device Configuration

    - Advanced Configuration Options

- SCSI Disk Utilities

  - Lists all SCSI devices and SCSI ID numbers

NOTE For additional information about configuring POST message display status, refer to "Computer Setup Menu" on page 37.

SMART

The SMART SCSI hard drives for HP workstations have built-in drive failure prediction that warns the user or the network administrator of an impending failure or crash of the hard drive. SMART drives track fault prediction and failure indication parameters, such as re-allocated sector count, spin retry count, and calibration retry count. If the drive determines that a failure is imminent, it generates a fault alert.

Jumpers

All SCSI controllers require a unique SCSI ID (0–15) for each SCSI device installed.

The controller identifies a SCSI device by its SCSI ID number rather than its location. Moving a SCSI device from one position to another on the SCSI chain does not affect communication between the controller and the device.

The reserved and available SCSI ID numbers are displayed in the following list:

- 0 is reserved for the primary hard drive (not reserved for the primary hard drive on Linux).

- 7 is reserved for the SCSI controller.

- 1 through 6 and 8 through 15 are available for all other SCSI devices.

When 0 is used for the primary hard drive, set the second hard drive to 1, the third to 2, and so on.

To set the SCSI ID on a drive, refer to the instructions on top/back of the hard drive for the correct jumper settings. The drive probably displays a diagram of the jumper block. This diagram shows you which blocks to cover with your jumper to get the desired ID.

For example, if the drive needs to be set to 3, the drive might show that the 3 ID bits are at the far left of the connector (ID0, ID1, ID2, and ID3), then using the jumpers provided, cover each block to set the SCSI ID.

NOTE After changing the jumper settings, reboot the workstation to recognize the new address.